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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,687	10/29/2003	Chih C. Tsien	1000-0014	5268

7590 08/25/2006	EXAMINER

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EXAMINER
ALAM, FAYYAZ

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/696,687	TSIEN ET AL.
	Examiner	**Art Unit**	
	Fayyaz Alam	2631	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/29/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

   1.   Determining the scope and contents of the prior art.
   2.   Ascertaining the differences between the prior art and the claims at issue.
   3.   Resolving the level of ordinary skill in the pertinent art.
   4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 1 - 3, 6, 9, and 14 - 18 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** in view of **Khullar (U.S.**

Application # 2002/0154611).

Consider **claims 1, 9, and 17,** Wright et al. disclose a method and thereby a

system and a set of executable instructions stored in a storage medium comprising of

calculating a link margin for a ground data link unit or GDL (read as wireless device and

transceiver; col. 20, lines 1 - 3) by using received E_b/N_o (in dB) (read as received power

level) and required E_b/N_o (in dB) (read as receiver sensitivity) (see col. 20, lines 35 -

40).

Wright et al. fail to disclose adjusting at least one of transmit data rate and

transmit power level for the wireless device based on link margin.

In the related field of endeavor, Khullar disclose selecting robust transmission

scheme (read as transmit data rate) until the present link margin has at least same link

margin as the former transmit power level (read as adjusting transmit data rate based

on link margin; see [0041]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Wright et al. with the

teachings of Khullar in order to reduce power consumption.

Consider **claims 2 and 16** as applied to claim 1 and claim 14, Wright et al.

disclose received E_b/N_o (in dB) (read as received power value since it is being

calculated in an equation) (see col. 20, lines 35 - 40).

Wright et al. fail to disclose wireless device is a wireless client device for use in a wireless network.

In the related field of endeavor, Khullar discloses that the wireless device is a mobile station or MS (read as wireless client; see [0025]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to use link margin information in a wireless environment to control power.

Consider **claims 3, 14, and 18** as applied to claim 1 and claim 14, Wright et al. disclose calculating link margin and thereby a link margin determination unit by determining the difference between received E_b/N_o (in dB) and required E_b/N_o (in dB) (read as receiver sensitivity) (see col. 20, lines 35 - 40).

Consider **claims 6 and 15** as applied to claim 1 and claim 14, Wright et al. fail to disclose determining receiver sensitivity, before calculating link margin, based on a data rate of a received signal.

In the related field of endeavor, Khullar discloses a table of input signal sensitivities (read as receiver sensitivity) with corresponding transmission scheme (read as transmit data rate) where the transmission scheme selection is based upon the link margin present at the former increased power level (read as based on data rate of received signal) (see figure 3; [0038] and [0041]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the

teachings of Khullar in order to calculate the link margin before using the link margin

information.

Claims 4 - 5, 8, 10 - 13, and 19 - 20 are rejected under 35 U.S.C. 103(a) as

being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** as modified by **Khullar**

(U.S. Application # 2002/0154611) as applied to claims above, and further in view of

Wentink (U.S. Application # 2005/0030976).

Consider **claims 4, 10, and 19** as applied to claims 1, 9, and 17, Wright et al. as

modified by Khullar fail to disclose selecting a transmit data rate by determining which of

a plurality of ranges said link margin falls within.

In the related field of endeavor, Wentink discloses a table of link margin values

(read as plurality of ranges of link margin; [0047]) and also suggests using link margin to

establish an appropriate transmit rate (read as transmit data rate; [0052]). Therefore it

would be obvious to use the link margin values in a table and associate them with a

particular data rate since the data rates are already being chosen based on link margin.

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Wright et al. and Khullar

with the teachings of Wentink in order to provide appropriate data rates for a given link

margin to conserve power.

Consider **claims 5, 13, and 20** as applied to claims 1, 12, and 17, Wright et al.

as modified by Khullar fail to disclose entering a power reduction loop when said link

margin exceeds a predetermined level.

In the related field of endeavor, Wentink discloses readjusting transmit power when link margin changes by a significant amount (read as exceeds a predetermined level) and in addition the method can be reiterated (read as power reduction loop since readjust means either increase or decrease the power) according to suitable transmit power requirements (see [0051]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Wentink in order to provide variable transmit power to conserve the overall power being utilized.

Consider **claims 8 and 11** as applied to claim 1 and claim 10, Wright et al. as modified by Khullar fail to disclose selecting a maximum data rate and decreasing a transmit power level when said link margin exceeds a predetermined value.

In the related field of endeavor, Wentink discloses establishing maximum supportable transmit rate (read as transmit data rate) and reducing the transmit power when link margin changes a significant amount (read as exceeds predetermined value; [0051; 0052]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Wentink in order to minimize power consumption.

Consider **claim 12** as applied to claim 9, Wright et al. as modified by Khullar fail to disclose a transmit power determination unit to adjust a transmit power level of the wireless device based on link margin.

In the related field of endeavor, Wentink discloses transmit power adjustment module (210) which determines the transmit power from the link margin (see [0049]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Wentink in order to perform power control.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159) and Khullar (U.S. Application # 2002/0154611)** as applied to claims above, and further in view of **Klein et al. (U.S. Application # 2003/0100328)**.

Consider **claim 7** as applied to claim 6, Wright et al. as modified by Khullar fail to disclose a received beacon signal.

In the related field of endeavor, Klein et al. disclose a receive beacon signal (see [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Klein et al. in order to use existing method to perform transmit power control.

Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** in view of **Khullar (U.S. Application # 2002/0154611)** and further in view of **Durham et al. (U.S. Application # 2005/0030244)**.

Consider **claim 21**, and 24 Wright et al. disclose a method and thereby a system and a

set of executable instructions stored in a storage medium comprising of calculating a

link margin for a ground data link unit or GDL (read as wireless device and transceiver;

col. 20, lines 1 - 3) by using received E_b/N_o (in dB) (read as received power level) and

required E_b/N_o (in dB) (read as receiver sensitivity) (see col. 20, lines 35 - 40).

Wright et al. fail to disclose adjusting at least one of transmit data rate and

transmit power level for the wireless device based on link margin.

In the related field of endeavor, Khullar discloses selecting robust transmission

scheme (read as transmit data rate) until the present link margin has at least same link

margin as the former transmit power level (read as adjusting transmit data rate based

on link margin; see [0041]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Wright et al. with the

teachings of Khullar in order to reduce power consumption.

However Wright et al. as modified by Khullar, fail to disclose at least one dipole

antenna and a wireless transceiver coupled to at least one dipole antenna.

In the related field of endeavor, Durham et al. disclose an array of dipoles (read

as at least one dipole in a diversity arrangement) connected to transceiver (read as

wireless transceiver) (see [0015]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Wright et al. and Khullar

with the teachings of Durham et al. in order to provide a well known uniform radiation pattern in the azimuth plane and use antenna diversity for optimal connectivity.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159), Khullar (U.S. Application # 2002/0154611),** and **Durham (U.S. Application # 20050030244)** as applied to claims above, and further in view of **Wentink (U.S. Application # 2005/0030976).**

Consider **claim 22** as applied to claim 21, Wright et al. as modified by Khullar and further modified by Durham et al., fail to disclose transmit data rate determination unit selects said transmit data rate by determining which of a plurality of link margin ranges said link margin falls within.

In the related field of endeavor, Wentink discloses a table of link margin values (read as plurality of ranges of link margin; [0047]) and also suggests using link margin to establish an appropriate transmit rate (read as transmit data rate; [0052]). Therefore it would be obvious to use the link margin values in a table and associate them with a particular data rate since the data rates are already being chosen based on link margin.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al., Khullar, and Durham et al. with the teachings of Wentink in order to provide appropriate data rates to conserve power.

Consider **claim 23** as applied to claim 21, Wright et al. as modified by Khullar and further modified by Durham et al., fail to disclose a transmit power determination unit to adjust a transmit power level of the wireless device based on link margin.

In the related field of endeavor, Wentink discloses transmit power adjustment

module (210) which determines the transmit power from the link margin (see [0049]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Wright et al., Khullar, and

Durham et al. with the teachings of Wentink in order to perform power control.

Claims 25 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Khullar (U.S. Application # 2002/0154611) in view of **Wentink (U.S. Application #**

2005/0030976).

Consider **claim 25**, Khullar discloses selecting robust transmission scheme (read

as transmit data rate) until the present link margin has at least same link margin as the

former transmit power level (read as adjusting transmit data rate based on link margin;

see [0041]).

Khullar fails to disclose entering a power reduction loop to reduce a transmit

power level of said wireless transceiver when said calculated link margin exceeds a

predetermined level.

In the related field of endeavor, Wentink discloses readjusting transmit power

when link margin changes by a significant amount (read as exceeds a predetermined

level) and in addition the method can be reiterated (read as power reduction loop since

readjust means either increase or decrease the power) according to suitable transmit

power requirements (see [0051]).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time the invention was made to modify the teachings of Khullar with the teachings of

Wentink in order to provide variable transmit power to conserve the overall power being utilized.

Consider **claim 26** as applied to claim 25, Khullar fails to disclose selecting a transmit data rate by determining which of a plurality of ranges said link margin falls within.

In the related field of endeavor, Wentink disclose a table of link margin values (read as plurality of ranges of link margin; [0047]) and also suggests using link margin to establish an appropriate transmit rate (read as transmit data rate; [0052]). Therefore it would be obvious to use the link margin values in a table and associate them with a particular data rate since the data rates are already being chosen based on link margin.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings Khullar with the teachings of Wentink in order to provide appropriate data rates to conserve power.

Consider **claim 27** as applied to claim 25, Khullar fails to disclose selecting a maximum data rate and decreasing a transmit power level when said link margin exceeds a predetermined value.

In the related field of endeavor, Wentink discloses establishing maximum supportable transmit rate (read as transmit data rate) and reducing the transmit power when link margin changes a significant amount (read as exceeds predetermined value; [0051; 0052]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Khullar with the teachings of Wentink in order to minimize power consumption.

Consider **claim 28** as applied to claim 27, Khullar as modified by Wentink discloses changing slot rate (read as changing transmit data rate therefore including maximum data rate) can be set by a user command input (read as user specified) (see [0035] and [0036]).

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Khullar (U.S. Application # 2002/0154611) in view of Wentink (U.S. Application # 2005/0030976)** as applied to claims above, and further in view of **Belcea (U. S. Patent # 6,904,021)**.

Consider **claims 29 and 30** as applied to claims 25 and 29, Khullar as modified by Wentink fail to disclose reducing a transmit power level by a first predetermined amount and transmitting a signal; determining whether an acknowledgement signal has been received in response to transmitting said signal; and when an acknowledgement signal has been received in response to transmitting said signal, repeating reducing and determining.

In the related field of endeavor, Belcea discloses a method that reduces transmit power according to a preset value and checks for an ACK (read as acknowledgement) signal and once an ACK is received it further reduces transmit power and once a NACK (read as acknowledgement signal is not received) is received then power is increased by a preset amount (see col. 9, lines 47 - 67 to col. 10, lines 1- 36).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Khullar and Wentink with the teachings of Belcea in order to conserve overall transmit power.

Conclusion

4.   Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

> Commissioner for Patents
> P.O. Box 1450
> Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

> Customer Service Window
> Randolph Building
> 401 Dulany Street
> Alexandria, VA 22314

5.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Fayyaz Alam whose telephone number is (571) 270-1102. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
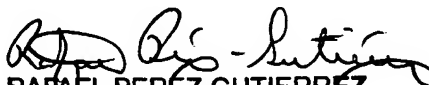
Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist/customer service whose telephone

number is (571) 272-2600.

Fayyaz Alam

August 10th, 2006

RAFAEL PERÉZ-GUTIERREZ
SUPERVISORY PATENT EXAMINER
8/17/06